

REMARKS

The Examiner rejected claims 15, 23 and 26 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, Applicant's have amended claims 15 and 23 to clarify the invention.

The Examiner rejected claims 8, 10-13, 14, 21 and 22 under 35 U.S.C. §103(a) as allegedly being unpatentable over Brigham et al. (U.S. Patent No. 6,380,010) in view of Houston (U.S. Patent No. 6,045,625).

The Examiner rejected claims 9,15, 18-20, and 23-26 under 35 U.S.C. §103(a) as allegedly being unpatentable over Brigham et al. (U.S. Patent No. 6,380,010) in view of Houston (U.S. Patent No. 6,045,625) and Zahurak et al. (U.S. Patent No. 6,593,192).

The Examiner rejected claim 13 under 35 U.S.C. §103(a) as allegedly being unpatentable over Brigham et al. (U.S. Patent No. 6,380,010) in view of Houston (U.S. Patent No. 6,045,625) and Choi (U.S. Patent No. 6,383,849).

Applicants respectfully traverse the §112 and §103 rejections with the following arguments.

**35 U.S.C. §112**

Claims 15, 23 and 26 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner alleges that "Claim 15 recites the limitation "the semiconductor layer." There is insufficient antecedent basis for this limitation in the claim".

In response, Applicants have amended claim 15 to recite the limitation "the semiconductor layer" to clarify the invention.

The Examiner alleges that "Claims 23 and 26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear what is meant by the following: a) "direct mechanical contact" (See Claims 23 and 26) ".

In response, Applicants have amended claims 23 and 26 to change "direct mechanical contact with " to "abuts" to clarify the invention. The term "abuts" is defined as " to touch along a border " by the Merriam-Webster Dictionary at website <http://www.merriam-webster.com/cgi-bin/dictionary>. Therefore Applicants contend that claims 23 and 26 are in condition for allowance.

**35 U.S.C. §103**

Claims 8, 10-13, 14, 21 and 22 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Brigham et al. (U.S. Patent No. 6,380,010) in view of Houston (U.S. Patent No. 6,045,625).

The Examiner alleges that "In regards to claims 8 and 10-13, Brigham et al. ('Brigham') discloses the following:

- a) a semiconductor wafer comprising a semiconductor layer (108) (For Example: See Figure 1);
- b) a first recess and a second recess formed through the semiconductor layer (For Example: See Figure 2);
- c) a body formed from the semiconductor layer situated between the first recess and the second recess, the body comprising a top body surface and a bottom body surface that defines a body thickness (For Example: See Figure 11);
- d) a source structure (114) formed into the first recess, the source structure comprising a source region (For Example: See Figure 11)
- e) a drain region (114) formed into the second recess, the drain structure comprising a drain region (For Example: See Figure 11); and
- f) a top portion of the source structure and a top portion of the drain structure are within and abut the body thickness (For Example: See Figure 11).

In regards to claims 8 and 10-13, Brigham fails to disclose the following:

- a) a semiconductor layer, that comprises single crystal silicon, overlying a buried insulator having three layers that comprise silicon dioxide, wherein the second layer comprises silicon nitride, wherein the third layer comprises silicon dioxide.

However, Houston discloses a semiconductor layer (16), that comprises single crystal silicon, overlying a buried insulator (14) having three layers that comprise silicon dioxide, and silicon nitride (For Example: See Figure 1, Figure 8c and Column 2 Lines 43-60). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Brigham to include a semiconductor layer, that

comprises single crystal silicon, overlying a buried insulator having three layers that comprise silicon dioxide and silicon nitride as disclosed in Houston because it aids in eliminating warping (For Example: See Column 1 Lines 49-62 and Column 2 Lines 43-60)".

As to claim 8 as amended, Applicants respectfully contend that claim 8 is not unpatentable over Brigham in view of Houston, because Brigham and Houston do not individually or collectively teach or suggest each and every feature of claim 8. For example, Brigham and Houston do not teach or suggest the feature of "a first recess and a second recess through the **semiconductor layer** and a first layer of the buried insulator; a **body** comprising a **portion of the semiconductor layer** situated between the first recess and the second recess, the body comprising a top body surface and a bottom body surface that define a body thickness; a **source structure within the first recess**, the source structure comprising a source region; and a **drain structure within the second recess**, the drain structure comprising a drain region" (emphasis added). Brigham and Houston do not individually or collectively teach or suggest that a source and drain structure are each within a recess (i.e., source structure within the first recess and drain structure within the second recess) through a **semiconductor layer** and that a **body** is formed from a portion of the **same semiconductor layer** as claimed by Applicant's claim 8. Applicants contend that the Examiner has incorrectly concluded that layer 108 in Brigham is a semiconductor layer. Brigham defines in col. 4, lines 27-28 "etched regions are typically filled with an **electrically insulating material 108**" (emphasis added). Additionally, Brigham defines in col. 4, lines 36-37 a "trench **oxide 108**". Therefore, Applicants contend that layer 108 in Brigham is an insulating layer, not a semiconductor layer as alleged by the Examiner. Applicants further contend that since layer 108 in Brigham is not a semiconductor layer,

Brigham does not teach recesses through a **semiconductor layer** with a source and drain within the recesses within a **semiconductor layer** as claimed by Applicant's claim 8. In contrast, Brigham teaches recesses within an **insulating layer 108** with a source and drain within the recesses in the **insulating layer 108**. Furthermore, Applicants contend that the Examiner has not even identified a body comprising a portion of a semiconductor layer in the Brigham patent as claimed by Applicant's claim 8. Applicants respectfully request that the examiner identify a body comprising a portion of a semiconductor layer (i.e., a reference number) in the Brigham patent. Thus, Applicants maintain that Brigham and Houston do not individually or collectively teach or suggest the preceding features of claim 8. Based on the preceding arguments, Applicants respectfully maintain that claim 8 is not unpatentable over Brigham in view of Houston, and that claim 8 is in condition for allowance. Since claims 10-13, 14, 21-22, and 27 depend from claim 8, Applicants contend that claims 10-13, 14, 21-22, and 27 are likewise in condition for allowance.

Claims 9,15, 18-20, and 23-26 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Brigham et al. (U.S. Patent No. 6,380,010) in view of Houston (U.S. Patent No. 6,045,625) and Zahurak et al. (U.S. Patent No. 6,593,192).

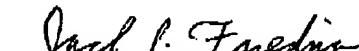
As to claim 15 as amended, Applicants respectfully contend that claim 15 is not unpatentable over Brigham in view of Houston and Zahurak, because Brigham, Houston and Zahurak do not individually or collectively teach or suggest each and every feature of claim 15. For example, Brigham and Houston do not teach or suggest the feature of "a first recess and a second recess **through the semiconductor layer** and said first buried insulator layer, the first recess comprising a source structure for a transistor, the second recess comprising a drain

structure for the transistor, a body comprising a portion of the semiconductor layer situated between the first recess and the second recess " (emphasis added). Brigham, Houston, and Zahurak do not individually or collectively teach or suggest that a source and drain structure are each within a recess (i.e., source structure within the first recess and drain structure within the second recess) through a semiconductor layer and that a body is formed from a portion of the same semiconductor layer as claimed by Applicant's claim 15. Applicants contend that the Examiner has incorrectly concluded that layer 108 in Brigham is a semiconductor layer. Brigham defines in col. 4, lines 27-28 " etched regions are typically filled with an electrically insulating material 108 " (emphasis added). Additionally, Brigham defines in col. 4, lines 36-37 a "trench oxide 108 ". Therefore, Applicants contend that layer 108 in Brigham is an insulating layer, not a semiconductor layer as alleged by the Examiner. Applicants further contend that since layer 108 in Brigham is not a semiconductor layer, Brigham does not teach recesses through a semiconductor layer with a source and drain within the recesses within a semiconductor layer as claimed by Applicant's claim 8. In contrast, Brigham teaches recesses within an insulating layer 108 with a source and drain within the recesses in the insulating layer 108. Furthermore, Applicants contend that the Examiner has not even identified a body comprising a portion of a semiconductor layer in the Brigham patent as claimed by Applicant's claim 15. Applicants respectfully request that the examiner identify a body comprising a portion of a semiconductor layer (i.e., a reference number) in the Brigham patent. Thus, Applicants maintain that Brigham, Houston, and Zahurak do not individually or collectively teach or suggest the preceding features of claim 15. Based on the preceding arguments, Applicants respectfully maintain that claim 15 is not unpatentable over Brigham in view of Houston and

Zahurak, and that claim 15 is in condition for allowance. Since claims 18-20, 24-26, and 28 depend from claim 15, Applicants contend that claims 18-20, 24-26, and 28 are likewise in condition for allowance.

**CONCLUSION**

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below.

Date: 04/27/2004

Jack P. Friedman  
Registration No. 44,688

Schmeiser, Olsen & Watts  
3 Lear Jct Lane, Suite 201  
Latham, New York 12110  
(518) 220-1850